

Reference Symbol List

1	longitudinal shaft
2	gearbox-side segment of the longitudinal shaft 1
3	differential-side segment of the longitudinal shaft 1
4	central articulation
5	gearbox-side articulation
6	differential-side articulation
7	outer hub of the articulation 5
8	weld seam
9	journal
10a	weld seam
10b	weld seam
11	outer hub of the articulation 4
12	outer hub of the articulation 6
13	cage of the articulations 4 and 5
14	ball of the articulations 4 and 5
14a	displacement position of the ball 14
14b	displacement position of the ball 14
14c	displacement position of the ball 14
15	inner hub of the articulations 4 and 5, respectively
16	central bore of the inner hub 15
17	plug-in tooth system

- 14 -

- 18 inner hub of the articulation 6
- 19 ball of the articulation 6
- 20 cage of the articulation 6
- 21 insert
- 22 bore of the inner hub 18
- 23 plug-in tooth system of the inner hub 18
- 24 journal of the differential input shaft
- 25 ball bearing unit
- 26 limitation stop
- 27 split ring
- 28a protective sheet metal piece
- 28b protective sheet metal piece
- 28c protective sheet metal piece
- 29a folded bellows
- 29b folded bellows
- 29c folded bellows

Claims:

1. Longitudinal shaft, particularly for use in automobiles having all-wheel drive or rear-wheel drive, comprising a gearbox-side articulation (5), a differential-side articulation (6), and a central articulation (4), each of which has an inner hub (15, 18) and an outer hub (7, 11, 12) that surrounds the former at least in some regions, whereby two shaft segments (2, 3) of the longitudinal shaft (1) are connected with one another so as to rotate together, by way of the central articulation (4), **characterized in that** the inner hubs (15, 18) of the gearbox-side articulation (5) as well as of the differential-side articulation (6) have a central bore (16, 22) provided with a plug-in connection (17, 23), to connect the longitudinal shaft (1) for integral rotation, and to center it, on journals (24) of a gearbox output shaft and a differential input shaft, respectively.

2. Longitudinal shaft as recited in claim 1, **characterized in that** the central articulation (4) has an inner hub (15) having a central bore (16) that is provided with a plug-in tooth system (17), which accommodates a journal (9) of a shaft segment (2) of the longitudinal shaft (1) for plug-in centering for integral rotation.

- 16 -

3. Longitudinal shaft as recited in one of the preceding claims, **characterized in that** the two shaft segments (2, 3) of the longitudinal shaft (1) are configured as shaft tubes, and the outer hubs (7, 11, 12) of the gearbox-side articulation (5), the differential-side articulation (6), and the central articulation (4) are shaped sheet-metal parts directly connected with the shaft tubes.

4. Longitudinal shaft as recited in one of the preceding claims, **characterized in that** the gearbox-side articulation (5) and/or the central articulation (4) are sliding articulations.

5. Longitudinal shaft as recited in claim 4, **characterized in that** the sliding articulations (4, 5) together have an assembly displacement path $(2 l_1 + 2 l_2)$, which corresponds to at least a length (L), with which the gearbox output shaft or the differential input shaft (24) projects into the inner hub (15, 18) of the gearbox-side articulation (5) or the differential-side articulation (6) in operation.

- 17 -

6. Longitudinal shaft as recited in one of the preceding claims, **characterized in that** the differential-side articulation (6) is a synchronous articulation.

7. Longitudinal shaft as recited in one of the preceding claims, **characterized in that** the gearbox-side shaft segment (2) has a diameter (D_2) that deviates from (D_3) of the differential-side shaft segment (3), in such a manner that the two shaft segments (2, 3) of the longitudinal shaft (1) can be pushed onto one another in the manner of a telescope.